

# MINERAL INDUSTRY SURVEYS

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## NICKEL IN OCTOBER 1997

Reported domestic nickel consumption in October, on a daily average basis, was 7% greater than that of September, according to the U.S. Geological Survey. Daily usage by the stainless steel industry was up 9% from the September average of 103 metric tons (t). Sales to plating companies averaged 47 t per day, 26% more than in September. However, consumption of elemental nickel to make nickel-base corrosion resistant alloys decreased 5%. U.S. consumer stocks of cathode, briquets, and powder declined slightly after reaching a 9-month high of 6,120 t in September. Stocks in London Metal Exchange warehouses continued to grow worldwide and were at a 2-year high of 67,000 t on October 31. Percentages reported in this paragraph may not be verifiable owing to concealment of company proprietary data. Imports of primary nickel for January-September 1997 totaled 111,000 t, about 2% more than the tonnage for the first 9 months of 1996. Trade data for October will appear in a subsequent issue.

### **New coins—the European Union and the United States move in opposite directions with respect to nickel**

On December 1, 1997, the President signed into law legislation authorizing the minting of some 2 to 3 billion nickel-bearing commemorative quarters (25-cent coins) per year over the next decade. The new law is entitled *The 50 States Commemorative Coin Program Act of 1997* (Public Law 105-124). The program will honor each of the 50 States of the Union.

The new coin would closely resemble the clad quarter dollar currently in circulation (Library of Congress, 1997). The obverse (i.e., front) side of the coin would still bear the likeness of George Washington. However, the reverse side would bear an emblem of one of the 50 States. Minting would begin in 1999 and continue for 10 years, with five States being honored each year. The redesigned quarters are to be issued in the order in which the States ratified the U.S. Constitution or were

admitted into the Union. The program is expected to earn \$3 billion to \$5 billion for the Treasury, with the proceeds being used to reduce the national debt.

The metal content, size, and shape of the coin will not change. The quarter now in circulation contains 8.33% nickel and 91.67% copper (Platt's Metals Week, 1997). The coin has a core of pure copper and outer layers composed of 25% nickel and 75% copper. It has a diameter of 24.3 millimeters and weighs 5.67 grams. More than 930 t of nickel and 10,400 t of copper would be required annually to make the new coins.

The U.S. Government action contrasts sharply with recent steps taken in Europe to discourage the use of nickel in new coinage. The European Monetary Union is planning to have its new euro coinage in circulation by January 1, 2002. There are to be eight denominations—1, 2, 5, 10, 20 and 50 eurocent plus the 1 and 2 euro. After July 1, 2002, coins of the individual member states will no longer be legal tender. Because of health considerations, the European Commission has proposed using a nickel-free alloy called "Nordic Gold" for the 10, 20 and 50 eurocent coins. The 1, 2 and 5 eurocent coins would also be nickel-free (Fortis Nederland, 1997). The large 1 and 2 euro coins may contain some nickel because of technical considerations. Environmental groups in Europe are concerned that long-term contact with coins made from nickel alloys could produce nickel dermatitis in some hypersensitive individuals. Minting of the first euro coinage is to begin in 1998.

An estimated 70 billion coins are currently circulating in the 15 member states of the European Union. About 75% of the coins contain nickel. The changeover would cause this percentage to fall to 8%.

### **References Cited**

Fortis Nederland, 1997, Euro coins unveiled; Technical specifications for euro coins: Fortis Nederland EURO site, August 28, 4 p. (Accessed December 12,

1997, on the World Wide Web at URL <http://www.nl.fortis.com/euro/e/home.htm>)  
Library of Congress, 1997, 50 States Commemorative Coin Program Act (previously Senate Bill 1228): Bill Summary & Status for the 105th

Congress, 18 p. (Accessed December 12, 1997, on the World Wide Web at URL <http://thomas.loc.gov/cgi-bin/>)  
Platt's Metals Week, 1997, U.S. demand for copper, nickel may rise under Quarter Act: Platt's Metals Week, v. 68, no. 49, December 8, p. 10.

TABLE 1  
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE 1/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total	Total year to date
1996:					
October	6,740	1,750	320	8,810	83,800
November	5,700	1,340	365	7,400	91,200
December	5,690	1,650	181	7,520	98,700
January-December	78,100	17,600	2,980	98,700	XX
1997:					
January	7,240 r/	2,000	102 r/	9,340 r/	9,340 r/
February	6,290 r/	1,510	130 r/	7,930 r/	17,300 r/
March	6,070 r/	1,580	254 r/	7,910 r/	25,200 r/
April	6,800 r/	1,490	570	8,860 r/	34,000 r/
May	6,920 r/	1,300	410	8,620 r/	42,700 r/
June	6,960 r/	1,280	435 r/	8,670 r/	51,300 r/
July	6,910 r/	1,640	300 r/	8,840 r/	60,200 r/
August	6,380 r/	1,460	201 r/	8,040 r/	68,200 r/
September	5,990 r/	1,470	288 r/	7,750 r/	76,000 r/
October:					
Steel:					
Stainless and heat resisting	1,940	1,450	W	3,390	36,100
Alloy (excludes stainless)	396	W	W	396	6,170
Superalloys	1,000	--	W	1,000	9,670
Copper-nickel alloys	W	W	W	W	2,370
Electrical, magnetic, and expansion alloys	W	--	--	W	W
Other nickel & nickel alloys	1,320	W	W	1,320	14,200
Cast iron	W	--	--	W	W
Electroplating (sales to platers)	1,470	--	W	1,470	12,800
Chemical and chemical uses	W	--	W	W	W
Other uses	545	93	333	971	3,220
Total reported	6,660 2/	1,540	333	8,540	84,500
Total all companies (calc) 3/	XX	XX	XX	12,900	128,000
1997: January-October	66,200	15,300	3,020	84,500	XX
1996: January-October	66,700	14,600	2,430	83,800	XX

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Of consumption, 5,660 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

3/ Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (66.21%) to apparent primary consumption for 1996.

TABLE 2  
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS,  
BY FORM AND USE 1/ 2/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total
1996:				
October	2,770	472	82	3,320
November	6,170	625	64	6,860
December	4,990	1,540	78	6,610
1997:				
January	4,390 r/	659	57 r/	5,110 r/
February	4,000 r/	231	182 r/	4,410 r/
March	4,050 r/	240	605 r/	4,890 r/
April	3,800 r/	366	634 r/	4,800 r/
May	3,280 r/	344	582 r/	4,200 r/
June	3,910 r/	389	304 r/	4,600 r/
July	4,670 r/	383	138 r/	5,190 r/
August	5,200 r/	286	169 r/	5,650 r/
September r/	6,120	447	157	6,720
October:				
Steel (stainless, heat resisting and alloy)	3,650	(3/)	(3/)	3,650
Nonferrous alloys 4/	1,450	(3/)	(3/)	1,450
Foundry (cast irons)	(3/)	--	--	(3/)
Chemical (catalysts, ceramics, plating salts, etc.) and unspecified uses	196	271	137	604
Total	5,290	271	137	5,700

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Stocks held by companies that consume nickel in more than one end use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustment.

3/ Included in "Chemical and unspecified uses" category.

4/ Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

TABLE 3  
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE 1/

(Metric tons, nickel content)

Period	Consumption			Stocks		
	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap
1996:						
October	3,600	773	4,370	3,340	107	3,450
November	3,250	785	4,030	3,630	89	3,720
December	3,320	656	3,970	3,510	88	3,600
January-December	43,400	9,980	53,400	XX	XX	XX
1997:						
January	4,800	847 r/	5,650	3,160	116	3,280
February	3,880	806 r/	4,690	3,290	115 r/	3,410 r/
March	4,250	1,010	5,260	4,090	106 r/	4,190
April	5,260	791 r/	6,060 r/	3,820	114 r/	3,940
May	4,750	843 r/	5,590	3,790	115 r/	3,900
June	4,770	758 r/	5,520	3,900	113 r/	4,020
July	5,190	828 r/	6,020	3,380	116 r/	3,490
August	3,780	762 r/	4,540	3,930	116 r/	4,040
September r/	3,910	776	4,690	3,710	110	3,820
October	4,440	798	5,240	4,030	118	4,150
1997: January-October	45,000	8,220	53,200	XX	XX	XX
1996: January-October	36,800	8,540	45,400	XX	XX	XX

r/ Revised. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Nickel content is calculated from an average nickel content and the reported gross weight of scrap.

3/ Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4  
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

Period and country of origin	Cathodes, pellets, and briquets	Powder and flakes	Ferro- nickel	Metal- lurgical- grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date 4/	Wrought nickel
1996:										
September	9,390	629	884	33	416	322	234	11,900	114,000	52
October	7,850	779	1,050	60	581	373	311	11,000	125,000	67
November	9,820	670	1,520	99	328	308	290	13,000	138,000	38
December	9,180	815	969	21	351	275	251	11,900	150,000	61
January-December	113,000	9,690	16,000	463	4,270	3,790	3,270	150,000	XX	636
1997:										
January	7,640	954	1,180	111	364	263	265	10,800	10,800	57
February	9,310	945	1,180	395	696	392	242	13,200	23,900	53
March	14,500	1,130	1,070	277	544	342	198	18,100	42,000	73
April	7,920	948	1,050	347	572	433	294	11,600	53,600	78
May	13,900	838	1,420	217	370	469	297	17,500	71,100	99
June	5,240	625	1,240	49	482	511	256	8,400	79,500	40
July	8,190	520	1,280	10	643	529	271	11,400	90,900	82
August	10,800	752	956	172	334	359	230	13,600	105,000	111
September:										
Australia	2,010	100	--	5	--	--	--	2,110	9,880	--
Canada	4,340	702	--	84	106	181	39	5,450	44,100	1
Colombia	--	--	100	--	--	--	--	100	1,130	--
Dominican Republic	--	--	529	--	10	--	--	539	5,900	--
Finland	59	20	--	--	--	--	10	88	3,880	--
France	154	--	150	--	63	--	15	382	2,370	--
Germany	--	1	--	--	61	(5/)	33	95	631	73
Japan	--	(5/)	--	--	10	8	36	53	688	8
New Caledonia	--	--	200	--	--	--	--	200	2,640	--
Norway	1,910	--	--	--	--	--	--	1,910	19,000	--
Russia	2,090	--	--	--	--	--	--	2,090	19,900	--
South Africa	218	--	4	--	--	--	4	226	488	--
United Kingdom	1	5	--	--	151	--	23	180	2,320	2
Zimbabwe	268	--	--	--	--	--	--	268	1,200	--
Other	48	79	110	--	54	189	45	526	4,530	--
Total	11,100	907	1,090	90	455	378	205	14,200	119,000	84
1997: January-September	88,600	7,620	10,500	1,670	4,460	3,680	2,260	119,000	XX	678
1996: January-September	86,000	7,430	12,400	284	3,020	2,830	2,410	114,000	XX	470

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ May include revisions for prior months.

5/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 5  
U.S. EXPORTS OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content 2/)

Period and country of destination	Cathodes, pellets, and briquets	Powder and flakes	Ferro- nickel	Metal- lurgical- grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date 4/	Wrought nickel
1996:										
September	6	80	179	359	1,210	2,230	292	4,360	34,200	27
October	20	79	359	420	1,280	2,270	185	4,620	38,800	63
November	19	88	324	517	918	1,610	197	3,670	42,500	59
December	21	75	433	393	960	1,850	551	4,280	46,800	21
January-December	586	1,060	3,330	4,210	10,900	22,800	3,940	46,800	XX	439
1997:										
January	20	72	442	513	862	1,740	455	4,100	4,100	56
February	39	114	416	134	1,000	1,690	515	3,920	8,020	89
March	26	93	616	172	1,210	1,280	488	3,880	11,900	61
April	33	84	725	148	1,480	2,740	684	5,890	17,800	158
May	29	102	913	124	1,290	1,610	439	4,510	22,300	58
June	52	97	900	172	963	3,540	258	5,990	28,300	56
July	19	55	661	165	676	2,970	428	4,970	33,300	109
August	28	63	491	103	726	3,210	676	5,300	38,600	50
September:										
Australia	--	--	--	--	--	--	--	--	79	--
Belgium	--	2	--	--	29	--	6	37	435	(5/)
Canada	18	13	--	38	807	317	45	1,240	9,710	1
Germany	--	4	--	--	31	4	3	42	586	1
India	--	2	63	--	14	5	--	84	1,720	22
Italy	--	1	--	--	--	(5/)	--	1	95	1
Japan	--	1	99	(5/)	49	272	78	499	3,730	(5/)
Korea, Republic of	--	(5/)	--	--	--	482	--	482	6,180	--
Mexico	182	7	3	--	--	247	11	449	4,500	42
Netherlands	--	1	--	--	--	1	1	3	346	--
Spain	--	--	--	--	--	968	--	968	3,710	--
Sweden	1	(5/)	--	--	255	6	--	261	1,980	(5/)
Taiwan	--	(5/)	179	--	--	231	5	415	5,720	--
United Kingdom	--	3	--	--	--	1	2	6	361	1
Other	10	5	--	130	2	124	270	541	4,440	11
Total	211	39	344	168	1,190	2,660	421	5,030	43,600	79
1997: January-September	457	720	5,510	1,700	9,400	21,400	4,360	43,600	XX	717
1996: January-September	526	819	2,210	2,880	7,720	17,000	3,010	34,200	XX	296

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ May include revisions for prior months.

5/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight )

Period and country of origin	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date 2/
1996:									
September	117	70	144	133	(3/)	50	59	573	7,800
October	249	151	120	90	(3/)	72	60	741	8,540
November	349	161	168	81	(3/)	66	29	854	9,390
December	151	178	256	145	(3/)	48	64	843	10,200
January-December	2,780	2,110	1,810	1,520	2	832	1,190	10,200	XX
1997:									
January	208	132	196	98	--	100	108	841	841
February	181	202	190	149	--	96	107	926	1,770
March	265	184	266	90	(3/)	117	52	974	2,740
April	234	186	283	139	--	298	61	1,200	3,940
May	457	148	290	190	1	104	56	1,250	5,190
June	431	190	346	150	3	134	68	1,320	6,510
July	463	224	283	247	(3/)	186	66	1,470	7,980
August	336	216	251	143	(3/)	363	36	1,350	9,320
September:									
Australia	94	--	--	--	--	--	--	94	1,570
Belgium	18	--	--	--	--	--	--	18	131
Canada	(3/)	--	7	(3/)	--	5	2	14	469
France	--	1	22	14	--	(3/)	(3/)	37	769
Germany	2	102	58	139	1	25	10	336	2,490
Italy	--	28	--	--	--	--	--	28	669
Japan	13	(3/)	4	2	--	132	(3/)	151	813
Mexico	(3/)	--	--	--	--	--	1	1	5
Netherlands	--	--	1	--	--	25	13	38	113
South Africa	34	--	--	--	--	--	--	34	315
Sweden	--	1	135	9	--	2	--	147	1,340
United Kingdom	14	51	1	10	--	13	17	106	925
Other	91	--	4	--	--	--	50	147	861
Total	266	183	232	174	1	202	93	1,150	10,500
1997: January-September	2,840	1,670	2,340	1,380	4	1,600	648	10,500	XX
1996: January-September	2,030	1,620	1,260	1,200	1	646	1,030	7,800	XX

XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions for prior months.

3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 7  
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight )

Period and country of destination	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total 2/	Total year to date 2/
1996:									
September	274	177	166	622	9	78	176	1,500	17,400
October	602	240	147	600	12	49	394	2,040	19,400
November	485	340	113	725	5	74	276	2,020	21,400
December	478	191	119	971	9	146	129	2,050	23,500
January-December	5,710	3,210	1,560	8,000	200	1,270	3,520	23,500	XX
1997:									
January	541	320	115	838	10	91	120	2,030	2,030
February	641	222	137	554	20	136	180	1,890	3,930
March	425	334	152	845	23	99	597	2,480	6,400
April	344	225	224	649	14	90	374	1,920	8,320
May	262	290	212	810	15	81	146	1,820	10,100
June	357	319	195	781	11	131	686	2,480	12,600
July	293	193	229	525	19	114	439	1,810	14,400
August	320	246	269	699	8 r/	131	238	1,910	16,300
September:									
Australia	--	(3/)	3	235	--	--	(3/)	238	934
Belgium	--	2	(3/)	14	(3/)	18	(3/)	34	180
Canada	10	26	27	32	23	49	63	230	2,620
France	130	84	(3/)	(3/)	1	(3/)	22	237	1,850
Germany	19	25	3	2	(3/)	(3/)	6	55	639
India	1	--	--	--	--	(3/)	(3/)	1	13
Ireland	--	--	64	--	--	(3/)	3	67	402
Italy	2	(3/)	1	82	(3/)	2	5	92	1,040
Japan	18	2	10	31	--	(3/)	7	68	1,650
Korea, Republic of	--	2	18	101	--	--	22	143	864
Mexico	1	1	60	11	1	5	5	84	593
Netherlands	31	20	(3/)	10	--	--	(3/)	61	412
Singapore	(3/)	1	(3/)	8	--	(3/)	1	10	162
Spain	--	--	1	1	--	1	--	3	72
Sweden	--	--	--	3	--	(3/)	--	3	141
Switzerland	(3/)	--	--	11	--	(3/)	(3/)	11	126
Taiwan	2	--	--	1	--	4	1	8	335
United Kingdom	32	109	28	148	(3/)	10	2	329	3,460
Other	23	9	7	24	1	14	17	95	2,620
Total	269	280	221	714	26	103	154	1,770	18,100
1997: January-September	3,450	2,430	1,760	6,420	146	976	2,940	18,100	XX
1996: January-September	4,150	2,440	1,180	5,710	174	999	2,720	17,400	XX

r/ Revised. XX Not applicable.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ May include revisions for prior months.

3/ Less than 1/2 unit.

Source: Bureau of the Census.



TABLE 8  
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent	
	Wrought	Cast
October 1997:		
Stainless and heat resisting steels	95	5
Alloy steels	100	(1/)
Superalloys	76	24
Copper-nickel alloys	97	3
Other nickel-base alloys	100	(1/)

1/ Less than 1/2 unit.

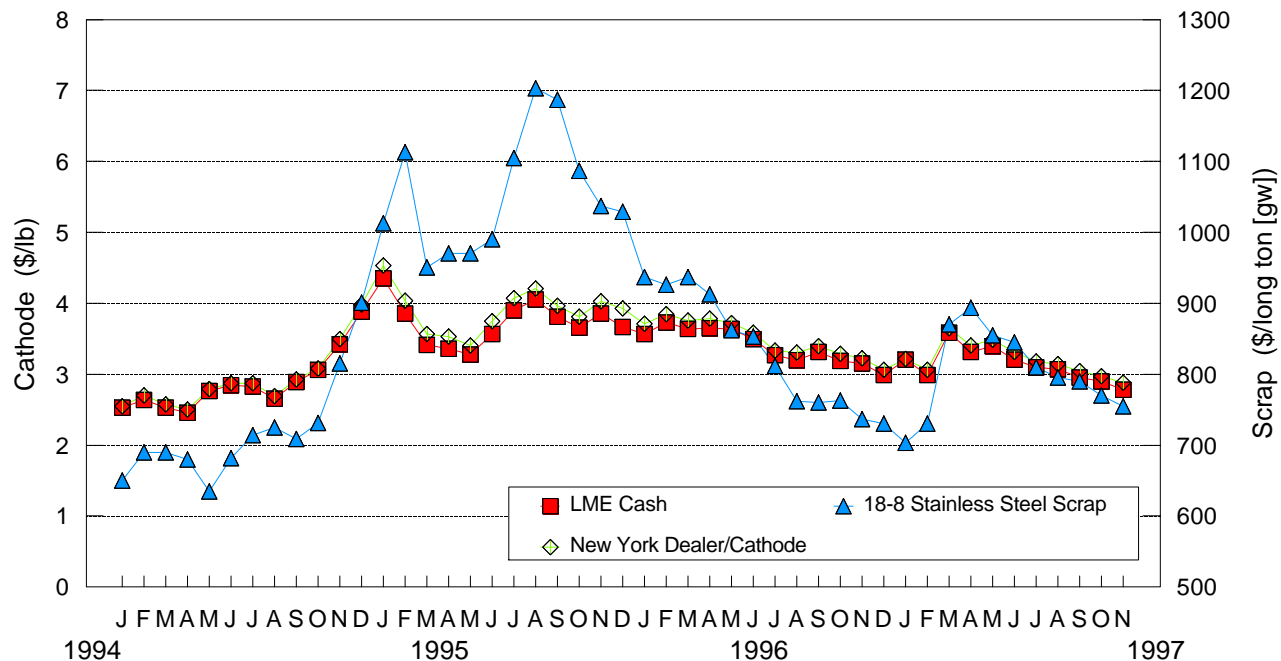
TABLE 9  
NICKEL PRICES

Date	Cathode NY Dealer \$/lb.	LME Cash \$/t	LME Cash \$/lb.	18/8 Stainless steel scrap Pittsburgh \$/long ton(gw)
1997:				
Average for the month of:				
September	3.042	6,503.841	2.950	790
October	2.973	6,380.326	2.894	770
November	2.883	6,139.500	2.785	750
For week ending:				
September 5	3.10-3.12	6,563.300	2.977	785-795
September 12	3.12-3.14	6,527.000	2.961	785-795
September 19	2.99-3.04	6,376.600	2.892	785-795
September 26	2.99-3.03	6,406.500	2.906	785-795
October 3	3.11-3.23	6,740.500	3.057	765-775
October 10	3.06-3.11	6,550.000	2.971	765-775
October 17	2.98-3.04	6,422.500	2.913	765-775
October 24	2.90-3.05	6,289.000	2.853	765-775
October 31	2.87-2.96	6,091.000	2.763	765-775
November 7	2.86-2.90	6,092.500	2.764	745-755
November 14	2.88-2.99	6,191.500	2.808	745-755
November 21	2.88-2.91	6,102.500	2.768	745-755
November 28	2.92-2.93	6,171.500	2.799	745-755

Sources: Platt's Metals Week and American Metal Market.

# 1994-97 AVERAGE MONTHLY PRICES

(Derived from Metals Week and American Metal Market quotations)



# 1994-97 STOCKS

